2 Documentation

Overview

The Documentation section provides an overall look at Signalogic DSP Software documentation, including organization and conventions used. Additional references and sources are also listed.

Note that the Signalogic DSP Software System Guide, and all DSPower documentation, have both an online Help form and a printed form. These forms are actually created from the same source, and so will appear similar. However, there are significant differences, as listed in section 2.3, Documentation Conventions, below.

Main Topics

Documentation Assumption of Previous Knowledge

Documentation Organization

Documentation Conventions

Documentation References and Additional Sources

2.1 Documentation Assumption of Previous Knowledge

The Signalogic DSP Software documentation assumes you are reasonably familiar with the following general areas:

1. **PC, DOS, and Windows terminology.** Examples include system resources of a PC (such as type and speed of processor, RAM, printer and serial ports, hard disk and CD ROM drivers, video display resolution, etc.), use of the DOS command line prompt, running applications and making menu and dialog box selections under Windows, and configuring a system using the Control Panel and Windows Setup icons under Windows.

2. **DSP terminology and nomenclature.** A sampling of subjects includes data and file acquisition, time and frequency domain analysis, digital filters, FFT, convolution, correlation, wavelet transform, z-transform, discrete sequences, difference equations, real-time processing, simulation, multirate sampling, minimum phase, joint time-frequency display, transfer function, and pole-zero analysis.

3. **DSP/analog hardware terminology.** Examples include sampling rates, multichannel, dual-port memory, instruction cycle time, DSP chip assembly language, downloading executable DSP files, Nyquist rate, antialiasing filters, sigma-delta converters, circular buffers, onchip RAM, and floating-point vs. fixed-point.

Related Documentation Topics

Documentation Assumption of Previous Knowledge

Documentation Organization

Documentation Conventions

Relationship Between Online and Printed Documentation

Online Documentation Conventions

Documentation References and Additional Sources

2.2 Documentation Organization

Signalogic DSP Software documentation is currently organized into the following books and online Help files (Help files shown in parentheses):

Signalogic DSP Software System Guide[1] (sysguide.hlp)

Covers system issues for all Signalogic DSP Software, including DSPower series and Hypersignal-Macro series software. Includes relationship and summary of products, system requirements and considerations, installation, documentation, performance issues, and troubleshooting.

Main System Guide Topics

Summary of Software Quick Reference

System Requirements Quick Reference

System Considerations Guide Quick Reference

Documentation Quick Reference

Installation Quick Reference

Troubleshooting Quick Reference

Signalogic DSP Software Users Guide (useguide.hlp)

Provides instructions on using DSPower series software, DSP Source Code Interface software, and compressed instructions on using Hypersignal-Macro series software.

Main Users Guide Topics

Using Hypersignal-Macro Series Software

Using DSP Source Code Interface Software

Using DSPower-HWLib and DSPower-SPLib Software

Using DSPower-Block Diagram Software

Using Engine Manager

Using Hardware Manager

Signalogic DSP Software Reference Guide (refguide.hlp)

Provides detailed technical reference for DSPower functions, DSP Engine functions, and DLL calls. Includes lists of DSP/analog hardware designators and error messages.

Main Reference Guide Topics

Block Reference

Function Reference

DSP/Analog Hardware Reference

Waveform File Formats

Struct Definitions

Error and Status Messages

Signalogic DSP Software Tutorial (tutorial.hlp)

Provides step-by-step examples on using DSPower series software.

Hypersignal-Macro Series Users Manual

Provides fully detailed instructions on using Hypersignal-Macro series software.

Hypersignal-Macro Series Hardware Reference Guide

Provides in-depth description of hardware supported by Hypersignal-Macro series software, including installation and configuration, analog I/O and digital specifications, DSP device and memory issues, and usage with software.

Hypersignal-Macro Series Software Reference Guide

Provides concise description of input fields and commands for Hypersignal-Macro series functions, displays, and instruments.

Hypersignal-Macro Series Tutorial

Provides step-by-step examples of using Hypersignal-Macro series software in user mode.

The online Help file shown in parentheses above can be invoked from icons in the Signalogic DSP Software group in Program Manager, or during the course of DSPower software operation. Note that Hypersignal-Macro series software also has a native online Help facility when operated in user mode.

Notes

[1]This manualhelp file.

Related Documentation Topics

Documentation Assumption of Previous Knowledge

Documentation Organization

Documentation Conventions

Relationship Between Online and Printed Documentation

Online Documentation Conventions

Documentation References and Additional Sources

2.3 Documentation Conventions

Following are some conventions typically used in Signalogic DSP Software documentation. Note that each convention is marked as to whether it used in DSPower series (table heading "D"), Hypersignal-Macro series (table heading "H"), or DSP Source Code documentation (table heading "SC"), or combination thereof.

Table 1 Signalogic DSP Software Documentation Conventions

Convention	Meaning	D	H	SC
NOTE:	used to show important information	•	•	•
[..]	square brackets used to show optional information, not necessary for command or data-entry	•	•	•
window | group | icon	Format used to explain a selection sequence under Windows, for example Program Manager | Main | Control Panel would indicate the sequence necessary to get to the Windows 3.1x Control Panel utility	•		
"..**In User Mode**.."	See User Mode and Engine Mode.	•		
'entry'	single-quotes; signifies text entry (keyboard entry) into software alphanumeric field	•	•	•
"label"	double-quote marks, used to denote menu or data-entry field labels or descriptions		•	
<key>	signifies entry of a keystroke or keystroke combination, for example <Enter>, or <Ctrl-Alt-Del>	•	•	•
vN.nn	version N.nn of software package	•	•	•
nnnn**b**	binary value[1], where each digit n is a bit (0 or 1)	•		
0xnnnn	hexadecimal[2] number nnnn	•		•
nnnn**H**	hexadecimal[2] number nnnn	•	•	•

DSPower series	includes DSPower-Block Diagram, DSPower-HWLib, DSPower-FileLib, and DSPower-C/C++ Code Generator	•		
Hypersignal-Macro series	includes Hypersignal-Macro NRT, Hypersignal-Macro, Hypersignal-Macro EX, and Hypersignal-Acoustic software and documentation	•		
Hypersignal	same as Hypersignal-Macro series, above	•	•	•
HSxxxxx	Refers to common names of Hypersignal files, such as HSMACRO.CNF, HSACOUS.CNF, HSM.BAT, HSA.BAT, etc.		•	
NRT	non-real-time	•	•	•
RT	real-time	•	•	•
DSP/analog, or **DSP/acquisition**	PC-compatible hardware with onboard DSP device, and/or onboard analog I/O (data acquisition capability)	•	•	•
kbyte or **kb**	kilobyte, unit of memory or disk space = 1024 byte	•	•	•
[3] **Mbyte** or **Mb**	megabyte, unit of memory or disk space = 1024 kbyte	•	•	•
nnk x N	nn kbyte memory locations of N bits each, as in 32k x 16 of SRAM, or 256k x 32 of DRAM	•	•	•
kHz	kiloHertz, unit of sampling rate = 1000 samples per second	•	•	•
[3] **MHz**	megaHertz, unit of sampling rate = 1000 kHz	•	•	•

V	Volts	•	•	•
dB	decibel log gain value, where: $gain_{dB}$GAINdB = $20*\log_{10}(gain_{lin}$GAINlin)	•	•	•

Notes:

[1]Binary values are read left-to-right, or msb first.

[2]Hexadecimal digits can be 0-9, and a-f.

[3]*M* is capitalized in abbreviation to differentiate from *m*, which denotes milli or 10e–3, as in mHz (milliHertz).

See Also

Related Documentation Topics

Documentation Assumption of Previous Knowledge

Documentation Organization

Documentation Conventions

Documentation References and Additional Sources

Relationship Between Online and Printed Documentation

The Signalogic DSP Software System Guide, Users Guide, Reference Guide, and Tutorial have both an online Help form and a printed form. These forms are actually created from the same source, and so will appear similar. However, there are significant differences, as listed below:

1. Chapter and section numbers are not shown in online Help, either at the start of chapters and sections or when referring to other information. In online Help, references to other chapters and sections are instead made by highlighting the reference as "jumptext", which can be selected by the mouse.

2. Frequently, at the end of an online Help section, there appears a list of additional topics, which are shown as jumptext. These lists of "Related Topics" do not appear in the printed documentation.

Note that the native online Help inside Hypersignal-Macro series software is completely separate from other Hypersignal-Macro series software documentation. Hypersignal native online Help is intended for user mode operation only, and is most closely related to the Hypersignal-Macro Series Software Reference Guide. It shows mainly a summary of valid menu field-entries at various stages of Hypersignal program operation. When a Hypersignal package is used as a DSP Engine with DSPower series software, the Hypersignal native online Help is not typically activated.

Related Documentation Topics

Documentation Assumption of Previous Knowledge

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Online Documentation Conventions

Documentation References and Additional Sources

Online Documentation Conventions

1. Jumps to other topics ("jumptext")are highlighted in green in online Help.
2. Glossary terms are highlighted in purple in online Help.
3. Often times, jumptext will have a small "secondary window" icon to its immediate right. Selecting this icon instead of the jumptext itself will cause the new topic to be displayed in a secondary help window.
4. Sequential viewing of online Help topics can be done using the "browse" buttons in online Help display, or using the DSPower Navigator to view preceding and succeeding topics.
5. Frequently, at the end of an online Help section, there appears a list of additional topics, which are shown as jumptext. If a topic is

bold, but not the jumptext color (green), then this signifies the current topic (topic you are already in).

Related Documentation Topics

Documentation Assumption of Previous Knowledge

Documentation Organization

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Differences Between Online and Printed Documentation

Online Documentation Conventions

Documentation References and Additional Sources

2.4 Documentation References and Additional Sources

References and Additional Sources Of Documentation

Related Documentation Topics

Documentation Assumption of Previous Knowledge

Documentation Organization

Documentation Conventions

Relationship Between Online and Printed Documentation

Online Documentation Conventions

Documentation References and Additional Sources

DSP Theory and Practical Application

A.V. Oppenheim and R.W. Schafer, *Digital Signal Processing* (Englewood Cliffs, NJ: Prentice Hall), 1975.

E.O. Bingham, *The Fast Fourier Transform and its Applications* (Englewood Cliffs, NJ: Prentice Hall), 1988.

A. Peled and B. Liu, *Digital Signal Processing* (New York, NY: John Wiley & Sons, Inc.), 1976.

L.B. Jackson, *Digital Filters and Signal Processing* (Boston, MA: Kluwer Academic Publishers), 1986.

Hypersignal-Macro Users Manual, "Brief Discussion of Sampled Data Systems" (Dallas, TX: Signalogic) March, 1993.

References and Additional Sources Of Documentation

DSP Theory and Practical Application

DSP/Analog and Acquisition Hardware

Waveform File Formats

Software Packages

DSP Chip Programming

DSP/Analog and Acquisition Hardware

Hypersignal-Macro Hardware Reference Guide (Dallas, TX: Signalogic), December, 1994.

References and Additional Sources Of Documentation

DSP Theory and Practical Application

DSP/Analog and Acquisition Hardware

Waveform File Formats

Software Packages

DSP Chip Programming

Waveform File Formats

Hypersignal-Macro Users Manual, "Hypersignal Waveform File Format" (Dallas, TX: Signalogic), March, 1993, chapter 5.

Microsoft Windows Multimedia Programmer's Reference (Redmond, WA: Microsoft Press), 1991, chapter 8.

References and Additional Sources Of Documentation

DSP Theory and Practical Application

DSP/Analog and Acquisition Hardware

Waveform File Formats

Software Packages

DSP Chip Programming

Software Packages

MATLAB User's Guide (Natick, MA: The MathWorks), 1993.

Hypersignal-Macro Users Manual, (Dallas, TX: Signalogic) March, 1993.

References and Additional Sources Of Documentation

DSP Theory and Practical Application

DSP/Analog and Acquisition Hardware

Waveform File Formats

Software Packages

DSP Chip Programming

DSP Chip Programming

WE DSP32C Application Software Library Reference Manual (Allentown, PA: AT&T), 1989.

P. Papamichalis ed., *Digital Signal Processing Applications with the TMS320 Family* (Dallas, TX: Texas Instruments), 1990, vol. 3.

W.H. Press, W.T. Vetterling, S.A. Teukolsky, B.P. Flannery ed., *Numerical Recipes in C*, 2nd ed. (Cambridge, UK: Cambridge University Press), 1992.

Signalogic Application Note #4, "Assembly Language Programming Comparison for TMS320C30, DSP32C, and DSP96002", (Dallas, TX: Signalogic), 1992.

References Additional Sources Of Documentation

DSP Theory and Practical Application

DSP/Analog and Acquisition Hardware

Waveform File Formats

Software Packages

DSP Chip Programming

Notes: